United States Department of Agriculture

Natural Resources Conservation Service

Arizona Basin Outlook Report January 1, 2004

ARIZONA
Water Supply Outlook Report
as of January 1, 2004

A full range of Snow Survey and Water Supply Forecasting products is available on the Arizona NRCS Home Page:

Snow Survey Program
http://www.az.nrcs.usda.gov/snow/index.html

Helpful Internet Sites

Defending Against Drought – NRCS
http://www.nrcs.usda.gov/feature/highlights/drought.html

- **Ideas on water, land, and crop management for you to consider while creating your drought plan.**

Arizona Agri-Weekly
http://www.nass.usda.gov/az/cur-agwk.pdf

- **Provides an overview of Arizona's crop, livestock, range and pasture conditions as reported by local staffs of the USDA's Agricultural Statistic Service and University of Arizona, College of Agriculture.**

SUMMARY

Surface water supplies will be short this year if current weather patterns hold. In that regard, recent snow survey measurements confirm that snowpack levels in key river basins are well below the 30-yr. average for this time of year. More snow is needed.

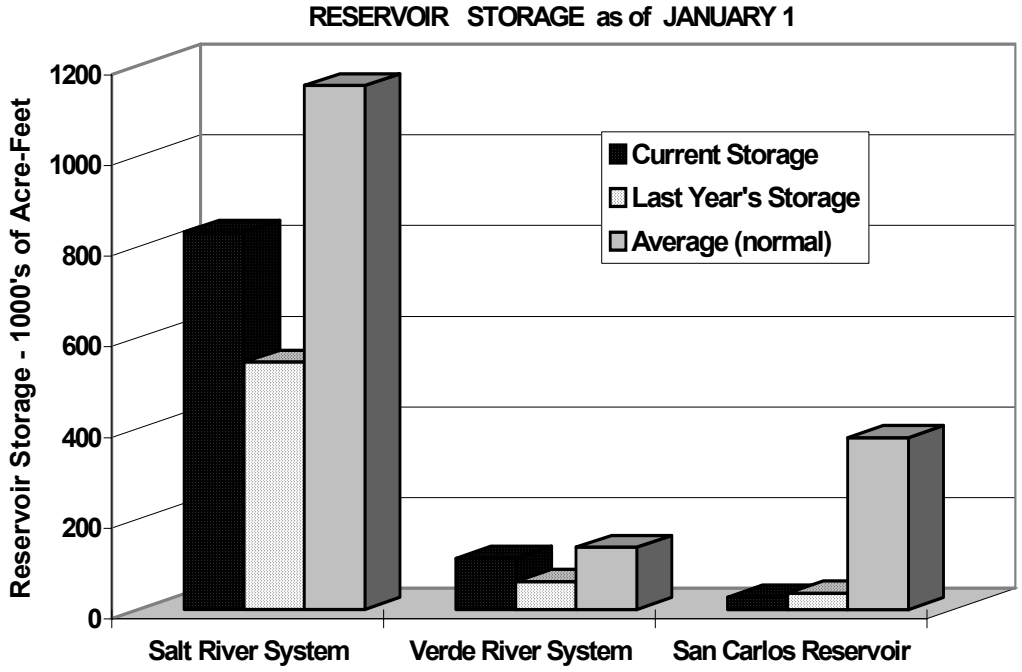
SNOWPACK

Watershed	Percent (%) of 30-Yr. Average Snowpack Levels as of January 1
Salt River Basin	41%
Verde River Basin	45%
Little Colorado River Basin	33%
San Francisco-Upper Gila River Basin	26%
Other Points of Interest	
Chuska Mountains	61%
Central Mogollon Rim	35%
Grand Canyon	24%
San Francisco Peaks	48%
Statewide Snowpack	41%

PRECIPITATION

Mountain data, from NRCS SNOTEL sites, show that seasonal precipitation catch is well below normal. Please refer to precipitation bar graphs found in this report for more information.

RESERVOIR



Key storage volumes displayed in thousands of acre-feet (1000 x):

RESERVOIR	CURRENT STORAGE	LAST YEAR STORAGE	30-YEAR AVERAGE
Lyman Lake	2.0	2.1	14.1
Show Low Lake	3.1	1.9	3.1
Lake Pleasant	427.9	334.5	----
Lake Havasu	516.2	546.7	556.4
Lake Mohave	1590.3	1678.8	1596.6
Lake Powell	11487.0	13774.0	18933.0
Lake Mead	15300.0	16718.0	21775.0
Salt River System	832.5	545.5	1155.5
Verde River System	113.0	62.8	137.0
San Carlos Reservoir	27.3	36.7	379.1

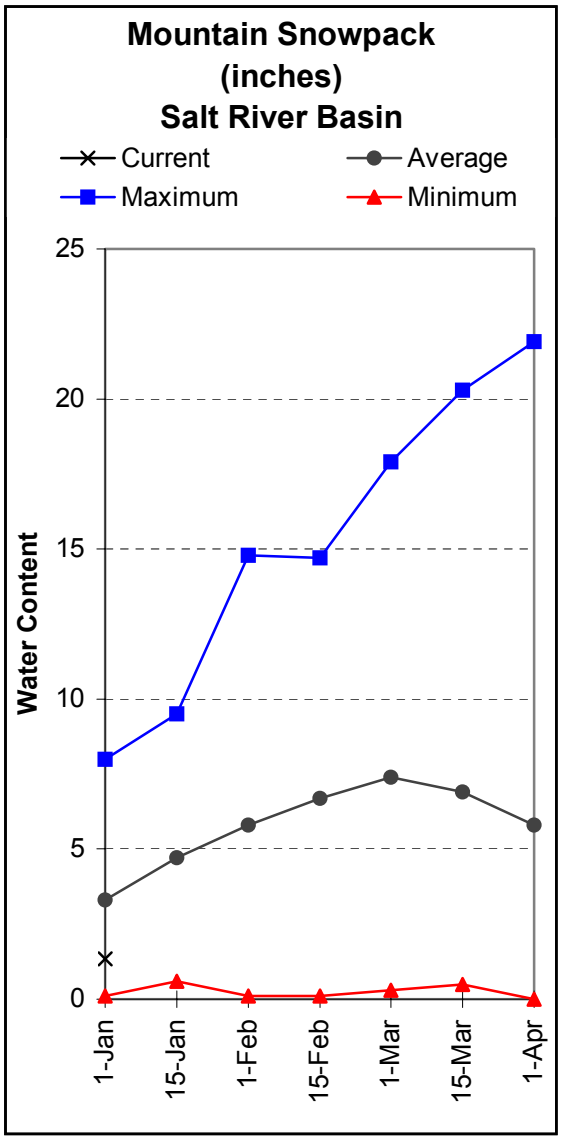
STREAMFLOW

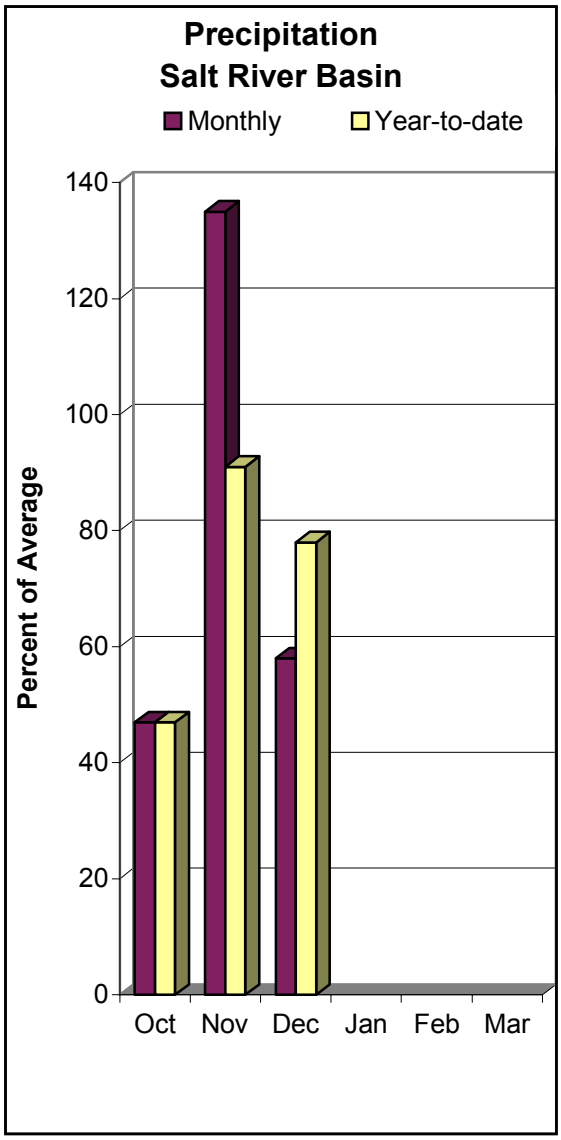
The long range forecast calls for below normal runoff this season as the result of poor snowpack conditions in the high country. Please refer to the basin forecast tables found in this report for more information.

SALT RIVER BASIN as of January 1, 2004

Well below median streamflow levels are forecast for the basin. In the Salt River, near Roosevelt, the forecast calls for 43 % of median streamflow levels through MAY, while at Tonto Creek, the forecast calls for 45 % of median streamflow levels through MAY.

Additionally, snow survey measurements show the Salt snowpack to be 41 % of the 30-year average, while combined reservoir storage in the Salt River system was reported at 832,508 acre-feet.





SALT RIVER BASIN
Streamflow Forecasts - January 1, 2004

Forecast Pt / Forecast Period	<=== Drier === 90% (1000AF)	70% (1000AF)	Future Conditions 50% (Most Prob) (1000AF)	(% MED.)	=== Wetter ===> 30% (1000AF)	10% (1000AF)	30 Yr Med (1000AF)
Salt River nr Roosevelt							
JAN-MAY	50	108	165	43	240	387	385
JANUARY	1.3	5.8	12.0	49	21	43	25
Tonto Creek ab Gun Creek nr Roosevelt							
JAN-MAY	2.4	11.9	25	45	45	92	56
JANUARY	0.29	0.41	0.50	9	3.34	12.08	5.90

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average and median are computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

SALT RIVER BASIN
Reservoir Storage (1000AF) End of December

Reservoir	Usable Capacity	********** Usable Storage ********* This Year	Last Year	Average
SALT RIVER RES SYSTEM	2025.8	832.5	545.5	1155.5

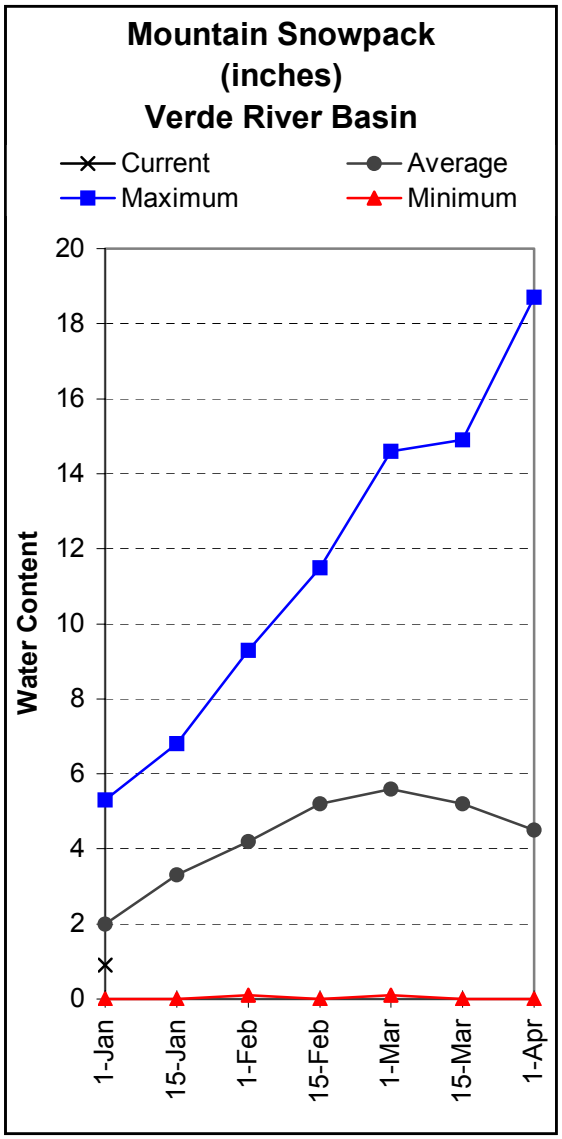
SALT RIVER BASIN
Watershed Snowpack Analysis - January 1, 2004

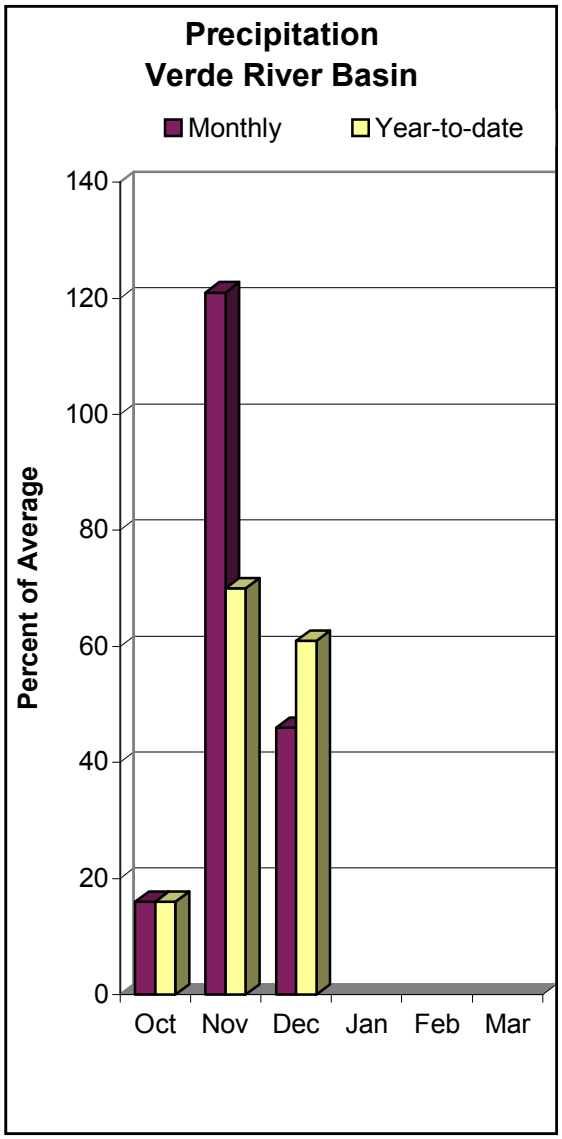
Watershed	Number of Data Sites	This Year as Percent of Last Year	Average
SALT RIVER BASIN	7	47	41

VERDE RIVER BASIN as of January 1, 2004

Well below median streamflow levels are forecast for the basin. In the Verde River, at Horseshoe Dam, the forecast calls for 57 % of median streamflow levels through MAY.

Furthermore, snow survey measurements show the Verde snowpack to be 45 % of the 30-year average, while combined reservoir storage on the Verde River system stands at 113,024 acre-feet.





VERDE RIVER BASIN
Streamflow Forecasts - January 1, 2004

Forecast Pt / Forecast Period	<=== Drier === 90% (1000AF)	70% (1000AF)	Future Conditions 50% (Most Prob) (1000AF)	50% (Most Prob) (% MED.)	=== Wetter ===> 30% (1000AF)	10% (1000AF)	30 Yr Med (1000AF)
Verde River abv Horseshoe Dam							
JAN-MAY	35	80	125	57	185	304	220
JANUARY	2.3	8.0	15.0	63	25	47	24

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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VERDE RIVER BASIN
Reservoir Storage (1000AF) End of December

Reservoir	Usable Capacity	********** Usable Storage ********* This Year	Last Year	Average
VERDE RIVER RES SYSTEM	287.4	113.0	62.8	137.0

VERDE RIVER BASIN

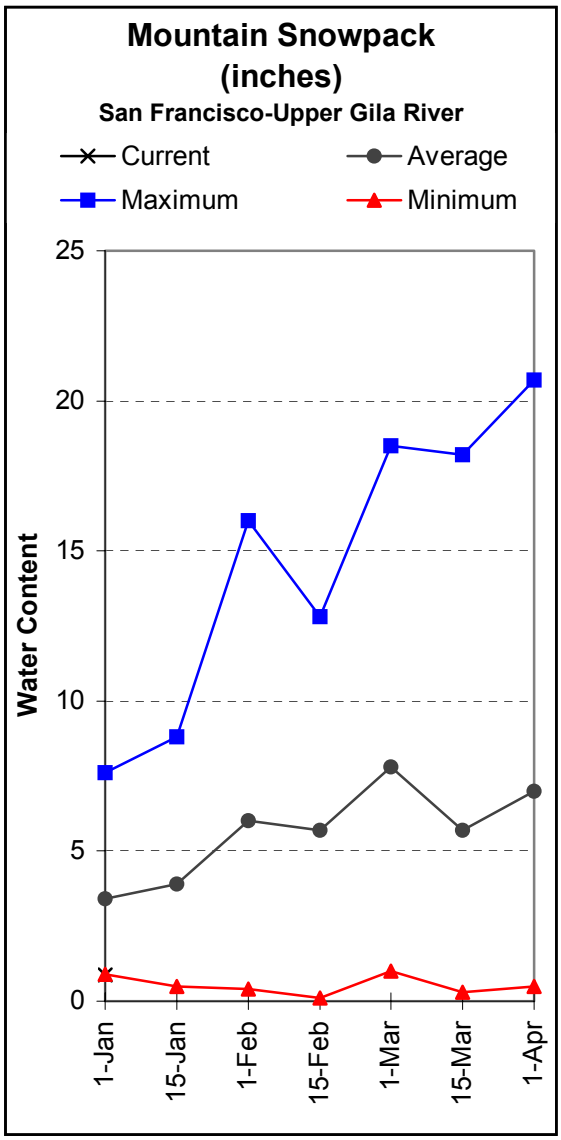
Watershed Snowpack Analysis - January 1, 2004

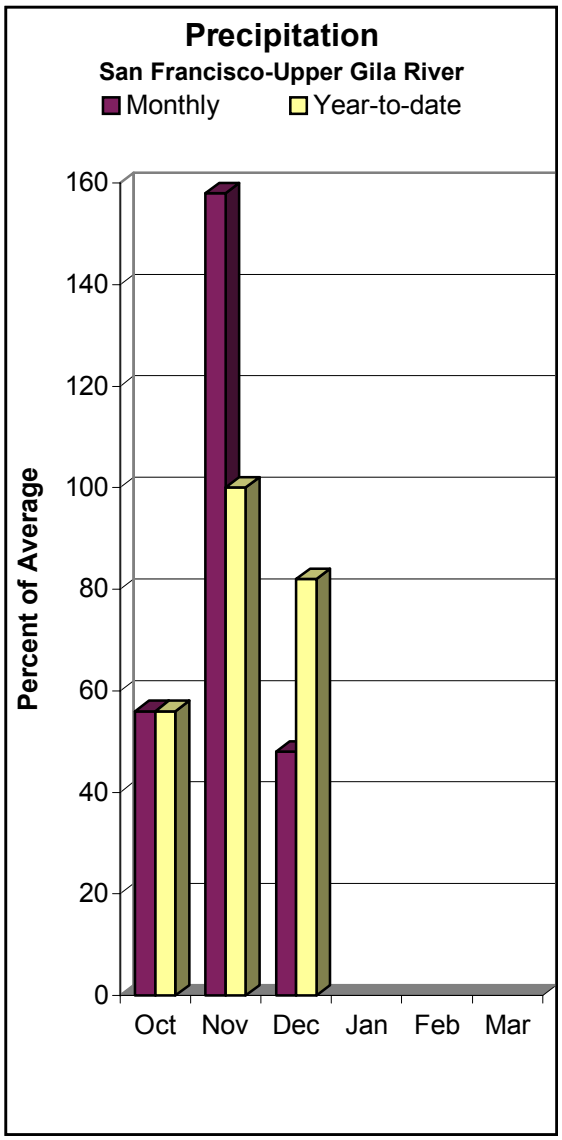
Watershed	Number of Data Sites	This Year as Percent of Last Year	Average
VERDE RIVER BASIN	10	49	45
SAN FRANCISCO PEAKS	3	64	48

SAN FRANCISCO-UPPER GILA RIVER BASIN as of January 1, 2004

Well below median streamflow levels are forecast for the basin. In the San Francisco River, at Clifton, the forecast calls for 51 % of median streamflow levels through MAY, while in the Gila River, near Solomon, the forecast calls for 27 % of median streamflow levels through MAY. At San Carlos Reservoir, inflow into the lake is forecast at 23 % of median through MAY.

At San Carlos, reservoir storage stands at 27,383 acre-feet, while measurements show snowpack levels to be at 26 % of the 30-year average.





SAN FRANCISCO - UPPER GILA RIVER BASIN
Streamflow Forecasts - January 1, 2004

Forecast Pt / Forecast Period	<=== Drier === Future Conditions === Wetter ===> Chance of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Prob) (1000AF)	50% (Most Prob) (% MED.)	30% (1000AF)	10% (1000AF)	30 Yr Med (1000AF)
Gila River at Gila							
JAN-MAY	15.0	19.9	27	45	36	52	60
Gila River nr Virden							
JAN-MAY	13.3	16.6	30	36	54	89	83
San Francisco River at Glenwood							
JAN-MAY	7.2	10.9	14.0	52	17.7	24	27
San Francisco River at Clifton							
JAN-MAY	11.9	24	36	51	61	97	70
Gila River nr Solomon							
JAN-MAY	25	54	45	27	106	197	165
JANUARY			9.0	46			19.7
San Carlos Reservoir inflow							
JAN-MAY	6.7	13.4	22	23	65	128	96

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SAN FRANCISCO - UPPER GILA RIVER BASIN
Reservoir Storage (1000AF) End of December

Reservoir	Usable Capacity	********** Usable Storage ********* This Year	Last Year	Average
SAN CARLOS	875.0	27.3	36.7	379.1
PAINTED ROCK DAM	2492.0	0.0	0.0	47.4

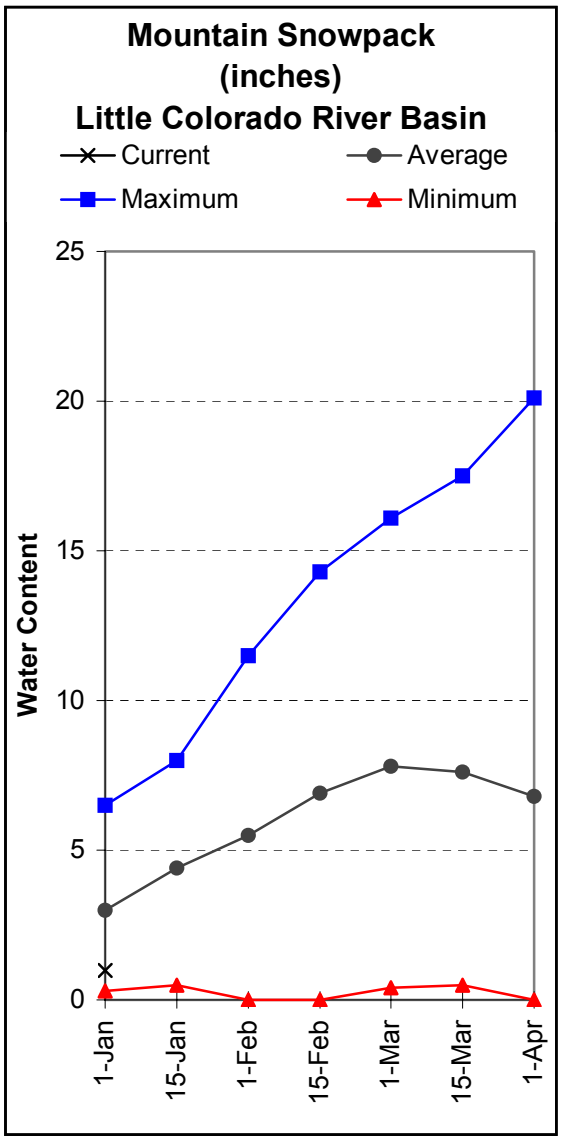
SAN FRANCISCO - UPPER GILA RIVER BASIN
Watershed Snowpack Analysis - January 1, 2004

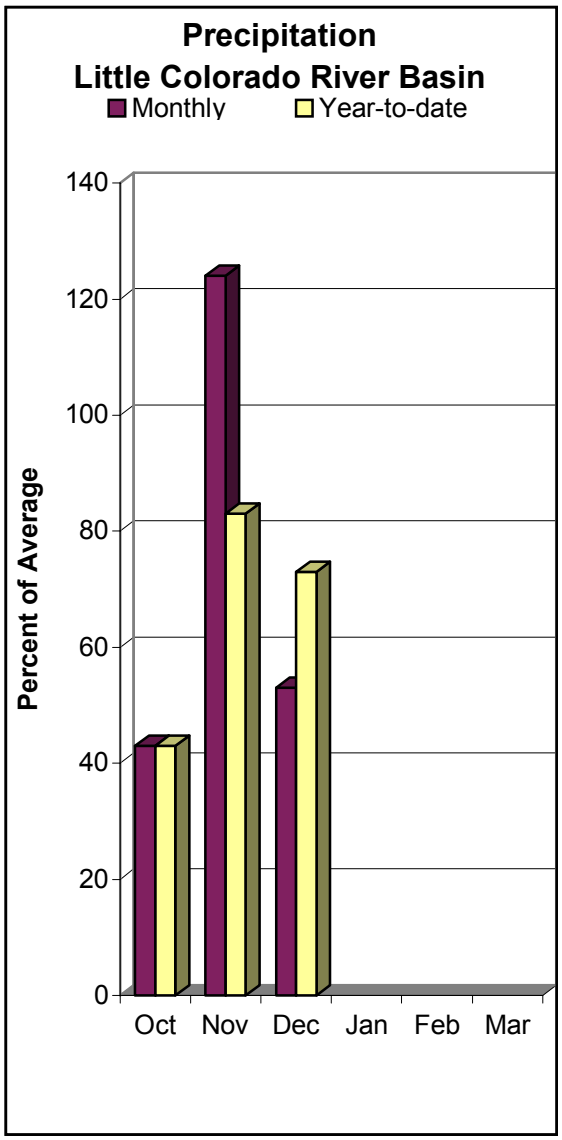
Watershed	Number of Data Sites	This Year as Percent of Last Year	Average
SAN FRANCISCO - UPPER GILA R	11	33	26

LITTLE COLORADO RIVER BASIN as of January 1, 2004

Well below median streamflow levels are forecast for the basin. In the Little Colorado River, at Lyman Lake, the forecast calls for 57 % of median streamflow levels through JUNE, while at Woodruff, the forecast calls for 58 % of median streamflow levels through MAY.

Additionally, snowpacks along the southern headwaters of the Little Colorado River, and along the central Mogollon Rim, were measured at 33 % and 35 % of the 30-year average, respectively.





LITTLE COLORADO RIVER BASIN
Streamflow Forecasts - January 1, 2004

Forecast Pt / Forecast Period	<=== Drier === Future Conditions === Wetter ===> Chance of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Prob) (1000AF)	(% MED.)	30% (1000AF)	10% (1000AF)	30 Yr Med (1000AF)
Little Colorado River abv Lyman Lake							
JAN-JUN	0.97	2.52	4.20	57	6.49	11.20	7.40
Rio Nutria nr Ramah							
JAN-MAY	0.15	0.31	1.40	45	5.00	8.70	3.10
Ramah Reservoir inflow							
JAN-MAY	0.09	0.17	0.77	45	2.87	6.07	1.71
Zuni River abv Black Rock Reservoir							
JAN-MAY	0.37	0.65	0.90	61	1.21	1.79	1.48
Little Colorado River at Woodruff							
JAN-MAY	0.47	0.72	2.10	58	3.20	5.40	3.60
Blue Ridge Reservoir inflow							
JAN-MAY	1.5	4.7	8.0	47	12.1	19.7	17.1
Lake Mary inflow							
JAN-MAY	0.87	1.47	2.00	40	2.64	3.83	5.00

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LITTLE COLORADO RIVER BASIN
Reservoir Storage (1000AF) End of December

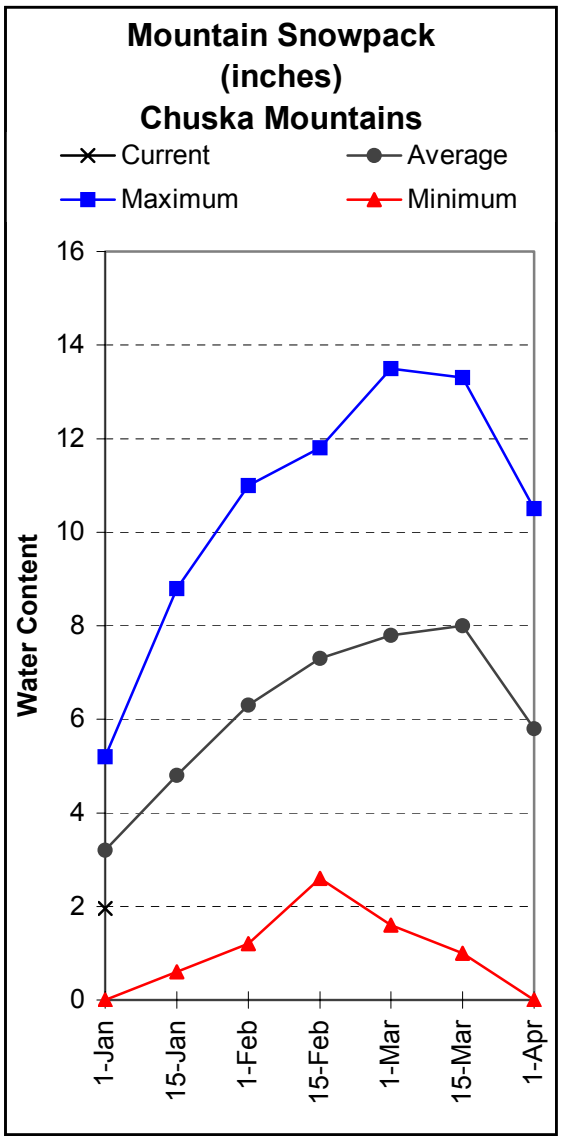
Reservoir	Usable Capacity	********** Usable Storage ********* This Year	Last Year	Average
LYMAN RESERVOIR	30.0	2.0	2.1	14.1
SHOW LOW LAKE	5.1	3.1	1.9	3.1

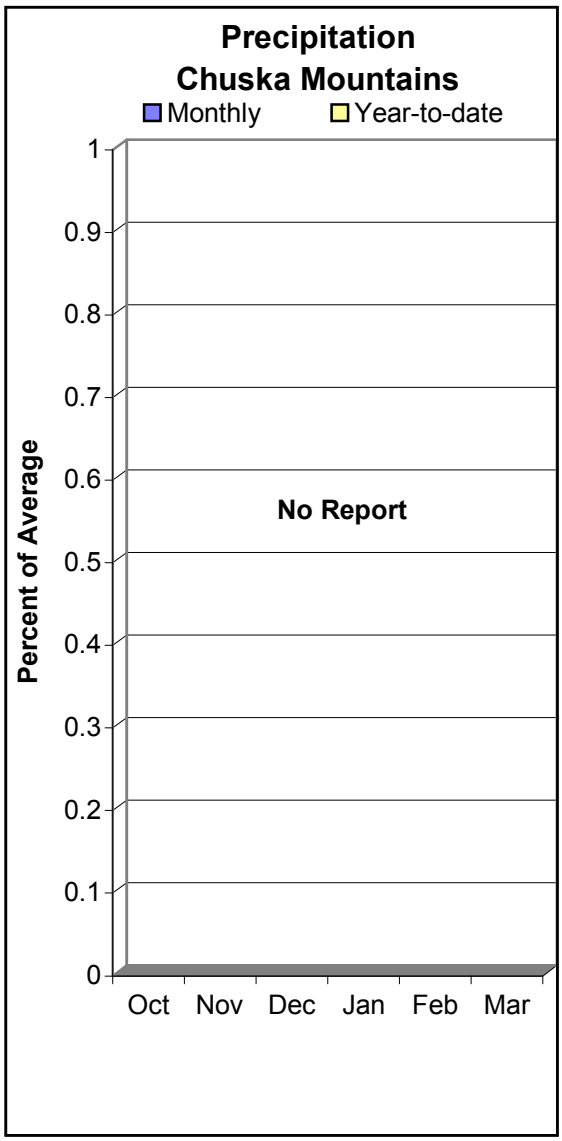
LITTLE COLORADO RIVER BASIN
Watershed Snowpack Analysis - January 1, 2004

Watershed	Number of Data Sites	This Year as Percent of Last Year	Average
LITTLE COLORADO - SOUTHERN H	7	35	33
CENTRAL MOGOLLON RIM	4	41	35

CHUSKA MOUNTAINS as of January 1, 2004

Snow survey measurements conducted by staff of the Navajo Tribe show the Chuska snowpack to be 61 % of average, while well below average runoff is forecast for Captain Tom Wash, Wheatfields Creek, and Bowl Canyon Creek.





CHUSKA MOUNTAINS
Streamflow Forecasts - January 1, 2004

Forecast Pt / Forecast Period	<=== Drier === Future Conditions === Wetter ===> Chance of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Prob) (1000AF)	50% (Most Prob) (% AVG.)	30% (1000AF)	10% (1000AF)	30 Yr Avg (1000AF)
Captain Tom Wash nr Two Gray Hills							
MAR-MAY	0.33	0.53	1.25	44	2.95	5.55	2.83
Wheatfields Creek nr Wheatfields							
MAR-MAY	0.34	0.54	1.25	43	3.05	5.65	2.90
Bowl Canyon Creek abv Assayi Lake							
MAR-MAY	0.11	0.18	0.43	43	1.04	1.90	1.00

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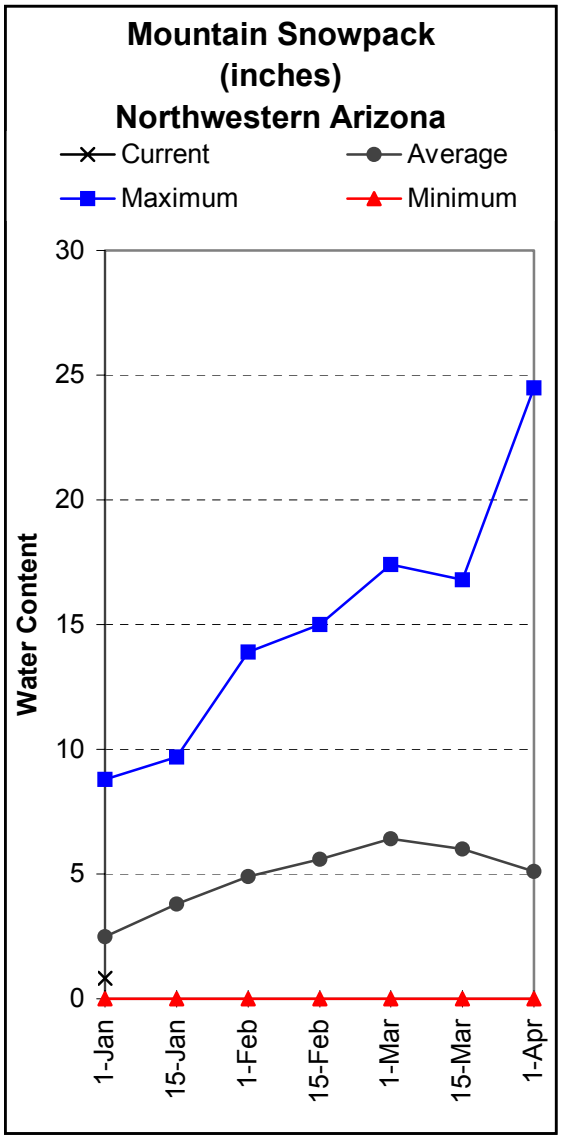
CHUSKA MOUNTAINS
Watershed Snowpack Analysis - January 1, 2004

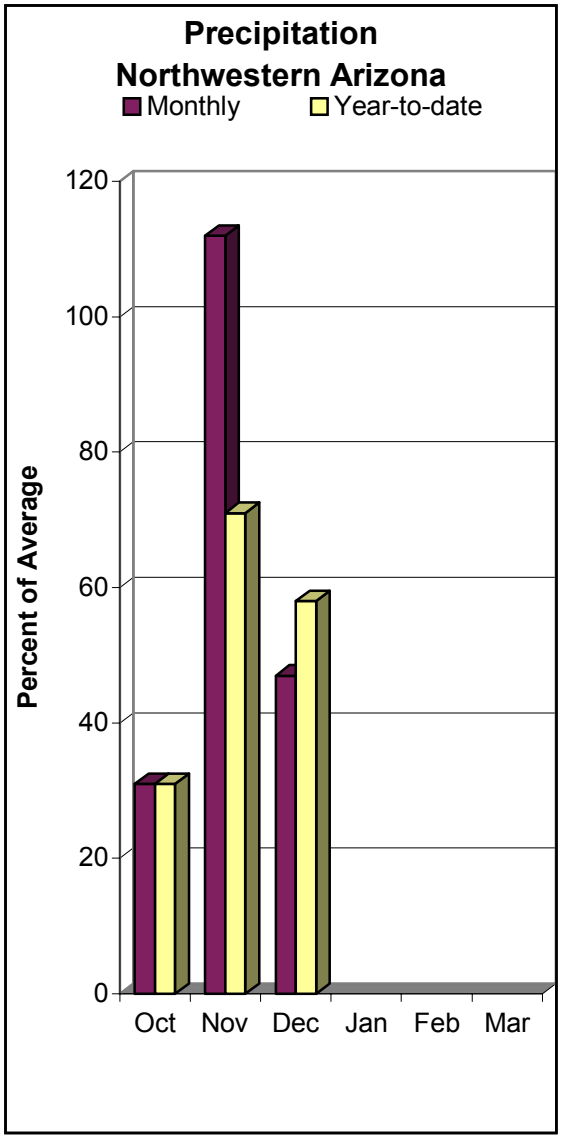
Watershed	Number of Data Sites	This Year as Percent of Last Year	Average
CHUSKA MOUNTAINS	7	66	61
DEFIANCE PLATEAU	2	90	69

NORTHWESTERN ARIZONA as of January 1, 2004

On the Colorado River, inflow into Lake Powell is forecast at 90 % of the 30-year average APR-JULY, while at Littlefield, the Virgin River is forecast at 91 % of the 30-year average.

At the Grand Canyon, measurements conducted by the National Park Service show the snowpack to be at 24 % of the 30-year average.





NORTHWESTERN ARIZONA
Streamflow Forecasts - January 1, 2004

Forecast Pt / Forecast Period	<=== Drier === 90% (1000AF)	70% (1000AF)	Future Conditions — Chance of Exceeding * — 50% (Most Prob) (1000AF)	50% (Most Prob) (% AVG.)	=== Wetter ===> 30% (1000AF)	10% (1000AF)	30 Yr Avg (1000AF)
Virgin River at Littlefield							
APR-JUL	31	52	67	91	82	103	74
Lake Powell inflow							
APR-JUL	3570	5690	7100	90	8510	10580	7930

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NORTHWESTERN ARIZONA
Reservoir Storage (1000AF) End of December

Reservoir	Usable Capacity	********** Usable Storage ********* This Year	Last Year	Average
LAKE HAVASU	619.0	516.2	546.7	556.4
LAKE MOHAVE	1810.0	1590.3	1678.8	1596.6
LAKE MEAD	26159.0	15300.0	16718.0	21775.0
LAKE POWELL	24322.0	11487.0	13774.0	18933.0

NORTHWESTERN ARIZONA
Watershed Snowpack Analysis - January 1, 2004

Watershed	Number of Data Sites	This Year as Percent of Last Year	Average
GRAND CANYON	2	42	24

S N O W S U R V E Y D A T A

JANUARY 1, 2004

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 71-00
ARIZONA						
ARBABS FOREST (AK)	7680	12/30/03	4	.8	1.0	1.2
BAKER BUTTE SNOTEL	7330	1/01/04	---	.3	2.1	2.3
BAKER BUTTE #2	7700	12/30/03	4	1.2	3.2	4.3
BALDY SNOTEL	9220	1/01/04	---	1.5	3.6	3.5
BEAVER HEAD	8000	12/30/03	1	.4	2.3	1.6
BEAVER SPRING	9220	12/30/03	13	2.6	3.0	3.9
BRIGHT ANGEL	8400	12/30/03	7	1.3	3.1	3.9
CHALENDER	7100	12/30/03	2	.3	.7	1.3
CHEESE SPRINGS	8600	1/06/04	6	1.0	2.8	2.5
CORONADO TRL SNOTEL	8400	1/01/04	---	.7	1.8	1.8
CORONADO TRAIL	8350	12/30/03	1	.3	1.6	1.6
FLUTED ROCK	7800	12/30/03	5	1.0	1.0	1.4
FORT APACHE	9160	1/06/04	8	1.1	3.4	3.8
FORT VALLEY	7350	12/30/03	2	.4	1.6	1.2
FRY SNOTEL	7220	1/01/04	---	1.4	2.2	2.8
GRAND CANYON	7500	12/30/03	0	.0	--	1.6
HANNAGAN MDWS SNOTEL	9020	1/01/04	---	2.1	3.8	5.5
HAPPY JACK	7630	1/02/04	2	.6	.9	2.0
HEBER SNOTEL	7640	1/01/04	---	1.2	2.2	2.3
LAKE MARY	6930	12/30/03	1	.3	2.6	1.5
MAVERICK FORK SNOTEL	9200	1/01/04	---	1.3	3.8	4.2
MORMON MTN SNOTEL	7500	1/01/04	---	.8	1.7	2.4
MORMON MT. SUMMIT #2	8470	12/30/03	6	2.1	2.9	1.1
NEWMAN PARK	6750	12/30/03	1	.3	2.2	.9
NUTRIOSO	8500	12/30/03	1	.3	1.3	1.0
PROMONTORY SNOTEL	7900	1/01/04	---	2.0	3.9	4.6
SNOW BOWL #1 ALT.	10260	1/02/04	8	1.4	2.0	5.7
SNOW BOWL #2	11000	1/02/04	15	2.6	6.6	9.0
TSAILE CANYON #1	8160	12/29/03	9	1.8	2.3	2.6
TSAILE CANYON #3	8920	12/30/03	16	1.3	4.3	3.6
WHITE HORSE SNOTEL	7180	1/01/04	---	.4	1.2	2.0
WILDCAT SNOTEL	7850	1/01/04	---	1.2	1.8	1.7
WILLIAMS SKI RUN	7720	12/30/03	7	1.8	.7	3.5
WORKMAN CREEK SNOTEL	6900	1/01/04	---	1.5	2.9	2.9

Issued by

Bruce I. Knight
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Arizona
Basin Outlook Report

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